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CLEANING DEVICE  
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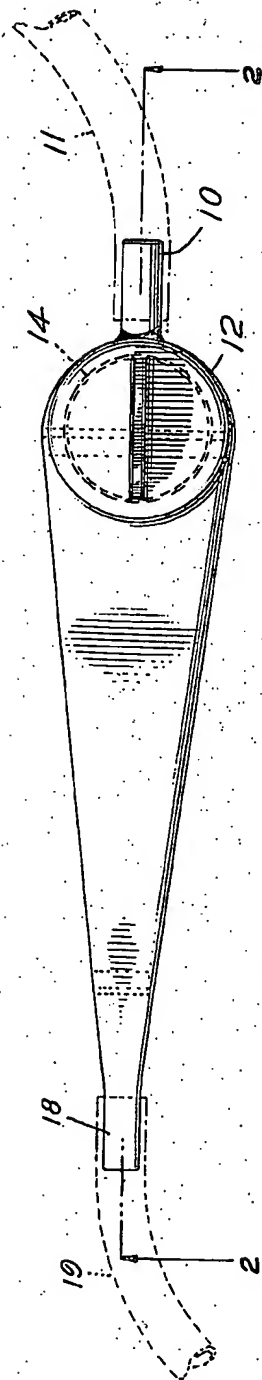


FIG. 1.

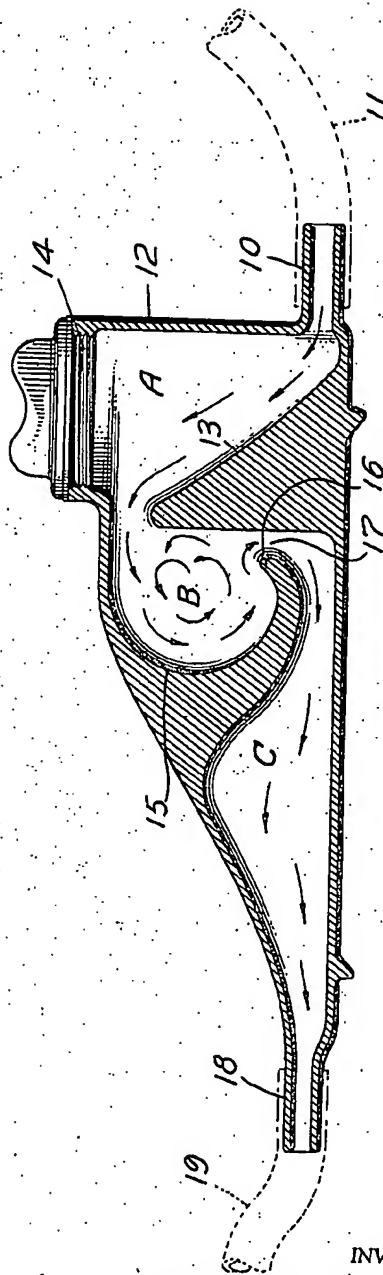


FIG. 2.

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## UNITED STATES PATENT OFFICE

2,137,300

## CLEANING DEVICE

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2 Claims. (Cl. 225-12)

The present invention relates to a device useful in cleaning and flushing pipes and particularly to a device for efficiently commingling or dissolving a detergent with the flushing liquid prior to entrance into the pipes to be cleaned.

In the cleaning or scouring of pipes and particularly such as are used in the dispensing of beer or the like, it is important that any detergent or cleaning agent be thoroughly dissolved in the flushing liquid, if soluble, or thoroughly suspended therein if not soluble. Otherwise, an inefficient cleansing or scouring will result. Many devices have been proposed for this purpose, but as far as I am aware, there is no commercially acceptable mechanism which will effectively accomplish this result in a simple and economical manner.

With the above object in view, the present invention contemplates a simple device which may be readily connected between the coils or pipes to be cleaned and a source of flushing fluid, into which a detergent or cleansing agent may be introduced, so constructed that the detergent or cleansing agent will, under the action of the flowing fluid, tend to remain in the device in a state of extreme turbulence. Consequently, complete solution of the agent, if soluble, or complete distribution and suspension if not soluble, will be effected.

The invention also contemplates an interior construction of the device so that pockets are eliminated, whereby it is assured that all of the detergent or cleansing agent introduced therein will be completely removed.

The invention also consists in the novel arrangements, combination and construction of parts more fully hereinafter described and shown in the accompanying drawing, in which—

Fig. 1 is a sectional elevation of a device embodying my invention; and

Fig. 2 is a plan view thereof.

Referring now more particularly to the species illustrated, there is shown a shape preferably of non-corrodible material having an inlet 10 which may, through the instrumentality of hose 11, be connected to a suitable source of flushing fluid such as water.

Beyond the inlet is a chamber A into which a detergent or cleansing agent may be introduced. This chamber is formed by curved front wall 12 and a rear wall 13 inclined upwardly from a point adjacent the inlet 10, to a point near the top of the device. This wall, therefore, forms a dam. A screw cap 14, properly gasketed, at the top of chamber A serves to close the opening

through which a detergent, cleansing or scouring agent may be introduced. This material may be one soluble in the flushing liquid or insoluble therein or a combination thereof and either liquid or solid depending upon the type of deleterious substance or substances to be removed from the pipes being cleaned.

It will be apparent that any cleaning or scouring agent deposited in the chamber A will, under the influence of the flushing fluid entering at 10, be completely swept out of the chamber, up the inclined wall 13 and over the top thereof as the construction shown does not permit of any pockets in which such material might be deposited.

Beyond the cleansing agent-receiving chamber A, is located a mixing chamber B, the construction of which is an important desideratum. Its rear wall 15 is curved downwardly, forwardly and then upwardly, terminating in the tip 16, comparatively close to the back of the wall 13, so as to form a restricted space 17. This construction insures a thorough mixing of the cleansing agent and the flushing fluid, inasmuch as the fluid carrying the agent impinges on the top of the curved wall 15 and then, in following its contour, is given a rolling motion being projected off of the tip 16 with a tendency to return to the top of and remain in the chamber. This action creates extreme turbulence and results in thorough mixing, which is essential in a device of this character.

Under the pressure of the incoming fluid, the mixed liquid and cleansing agent passes through the space 17 into the secondary turbulence producing chamber C and from thence through the outlet 18 and hose connection 19 to the pipes to be cleaned. It will be apparent, however, that before the mixture leaves the primary mixing chamber B, it will have remained there for an appreciable length of time under conditions of extreme turbulence, thus insuring complete solution or suspension.

It will also be seen that the construction of the device is such that in no way can any cleansing agent not soluble in the flushing fluid be deposited in the device and, hence, lost, as its lines are such as to insure sweeping all of the cleansing agent out of the device.

I claim:

1. A device of the character described comprising an inlet for flushing liquid, a cleaning agent receiving chamber, taking the liquid from the inlet, means at the top of the said chamber through which a cleaning agent may be intro-

duced, a turbulence producing mixing chamber beyond the first chamber having a liquid receiving wall curved downwardly, forwardly and then upwardly, whereby liquid impinging on said wall will assume a rolling motion, thus tending to return to the top of and remain in said chamber, thus insuring thorough mixing of the flushing liquid and cleaning agent, and a discharge outlet for the mixed liquid and agent, said first chamber being provided with a rear wall sloping upwardly from bottom to top, whereby solid cleaning material deposited therein will be completely swept out of the chamber by the incoming flushing liquid.

2. A device of the character described comprising an inlet for flushing liquid, a cleaning agent receiving chamber, taking the liquid from the inlet, means at the top of the said chamber

through which a cleaning agent may be introduced, a turbulence producing mixing chamber beyond the first chamber having a liquid receiving wall curved downwardly, forwardly and then upwardly, whereby liquid impinging on said wall will assume a rolling motion, thus tending to return to the top of and remain in said chamber, thus insuring thorough mixing of the flushing liquid and cleaning agent, and a discharge outlet for the mixed liquid and agent, said first chamber being provided with a rear wall sloping upwardly from bottom to top, whereby solid cleaning material deposited therein will be completely swept out of the chamber by the incoming flushing liquid, with a secondary turbulence producing chamber adjacent the discharge outlet.

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